

Permit in Review Fiscal Year 2014

This 2014 Permit in Review document is a snapshot of the significant progress that Montgomery County has made in meeting the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Discharge Permit requirements.

Achievements shown are those from February 2010 to June 30, 2014 - the beginning of the Permit cycle through the County's fiscal year 2014 (FY14). This Permit covers stormwater discharges to and from storm drain systems owned and operated by Montgomery County and its co-permittees.

Legal Authority



The County has strengthened legal authority in accordance with NPDES regulations 40 CFR Part 122 by updating the County's Stormwater Management Code and Regulations.

Pollutant Identification



The County has continued to identify its storm drain and stormwater management system elements and sources of discharges.

Management Programs



To control stormwater discharge and reduce pollution, the County maintains a diverse group of programs that target Trash and Litter reduction, Stormwater Facility Maintenance and Inspections, Illicit Discharge Detection and Elimination, and Public Education.

Watershed Health



The County has completed its first round of watershed assessments and restoration project inventories. The County is implementing and assessing projects to reduce pollutants to meet Total Maximum Daily Loads. The County has prepared a Countywide Coordinated Implementation Strategy to achieve all Wasteload Allocations by 2035 except those for bacteria.

Program Funding



The County has committed to meet stormwater initiatives through a ten-fold increase in capital improvement project funding and an increase in operating budget funding over the Permit term.



Legal Authority

The County has strengthened legal authority in accordance with the Clean Water Act National Pollutant Discharge Elimination System (NPDES) regulations 40 CFR Part 122 by updating the County's Stormwater Management Code and Regulations.

This section addresses § III.B. Legal Authority.

§ III.B. Throughout the Permit period, the County implemented measures to strengthen legal authority, including:

- **Montgomery County Code Chapter 19 establishes the County's legal authority to:**
 - **Article I Erosion and Sediment Control (ESC):** Administer an ESC program to control erosion and sediment during and post construction.
 - **Article II Stormwater Management (SWM):** Administer an SWM program to build and maintain stormwater facilities to slow and absorb runoff as well as to remove pollutants.
 - **Article IV Water Quality Ordinance:** Regulate pollutant discharges to County streams and establish inspection and enforcement procedures and penalties for non-compliance.
 - **Article V Special Protection Areas (SPAs):** Regulate developers in SPAs which are defined as having high-quality or unusually sensitive water resources that are threatened by landuse changes unless extraordinary protective measures are taken. During this Permit cycle, the following areas in the County were defined as SPAs: Clarksburg, Piney Branch, Ten Mile Creek, Upper Paint Branch, and Upper Rock Creek.
- **During the Permit Cycle, the County enacted legislation to amend and update Chapter 19 including:**
 - **Stormwater Management:** Bills 40-10 and 7-11 amended the County's SWM law to require management of stormwater runoff through nonstructural Best Management Practices (i.e. environmental site design) use to the maximum extent practical for new development and redevelopment projects.
 - **Water Quality Protection Charge (WQPC):** Bill 34-12 modified the structure of the County's WQPC to comply with the 2012 Maryland House Bill 987.
 - **Erosion and Sediment Control:** Bill 1-13 brought local ESC requirements into compliance with the Maryland SWM Act of 2007 and the 2011 Maryland Standards and Specifications for Soil ESC.
- **Coal Tar Sealants:** Bill 21-12, Coal Tar Pavement Products Law, banned the use of coal tar products.
- **Carryout Bag Law:** Bill 11-8, the County's Carryout Bag Law, was enacted to increase awareness about disposable bag litter and to reduce carryout bag use by taxing 5 cents per bag.

Co-Permittees

As defined in §I.B. of the NPDES Municipal Separate Storm Sewer System Permit, there are seven co-permittees in addition to the County. These include six small localities: Chevy Chase, Kensington, Poolesville, and Chevy Chase Village, and the Village of Friendship Heights. Montgomery County Public Schools was added as a co-permittee for this Permit cycle.



Pollutant Identification

The County has continued to identify its storm drain and stormwater management system elements and sources of discharges. This section addresses §§ III.C. Source Identification and III.D. Discharge Characterization.

§ III.C. Source Identification

Stormwater Management (SWM) Facility Mapping. The County is mapping locations and types of both Environmental Site Design (ESD) and non-ESD SWM Facilities. These facilities are known collectively as Best Management Practices (BMPs).

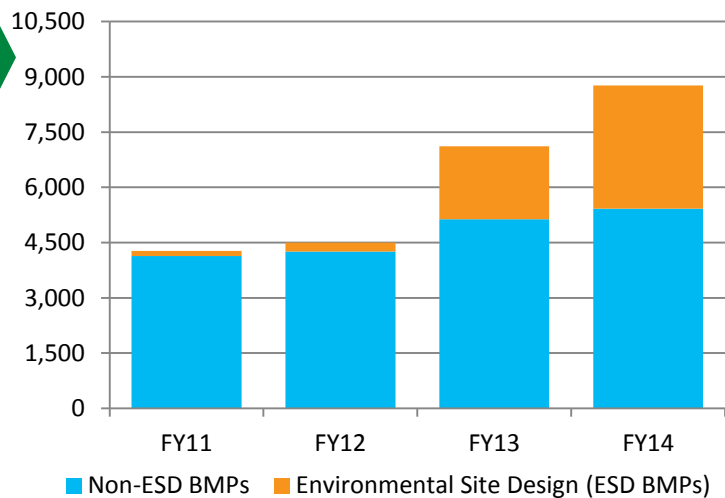
Key Terms:

- **Environmental Site Design (ESD):** is a design strategy for maintaining predevelopment runoff characteristics and protecting natural resources. ESD stormwater facilities integrate site design, natural hydrology and smaller controls to capture and treat runoff.
- **BMPs:** a structural or non-structural device designed to temporarily store or treat runoff in order to mitigate flooding, reduce pollution and provide other amenities.

Storm Drain Mapping. The County continues to improve its storm drain mapping to facilitate the identification of pollution sources from the MS4.

Impervious Area Mapping. The County is digitizing and updating a layer of County impervious area, BMP drainage areas, and an analysis of controlled versus uncontrolled impervious areas.

Total Number of Mapped Best Management Practices (BMPs) Systemwide by Fiscal Year



The implementation of ESD BMPs has increased from 3% to 38% over the permit period.

§ III.D. Discharge Characterization

The County conducts stormwater monitoring to assess the effectiveness of its stormwater management programs, watershed restoration projects and to document progress towards meeting Wasteload Allocations included in approved Total Maximum Daily Loads.



Water chemistry, biological and physical monitoring are conducted at the Breewood Tributary within the Anacostia Watershed to assess the effects of multiple watershed restoration projects within a small watershed.

Physical monitoring is conducted in the Clarksburg Town Center within the Seneca Watershed to assess the effectiveness of stormwater management practices for stream channel protection. During the Permit cycle, the County documented conditions prior to and during construction. Post construction monitoring will occur in the next Permit cycle.



Management Programs

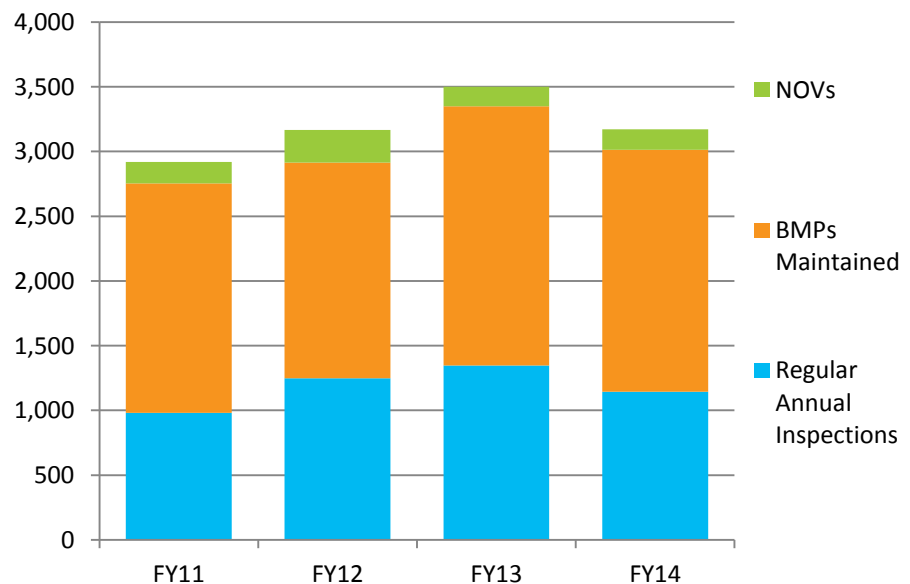
To control stormwater discharge and reduce pollution, the County maintains a diverse group of programs that target Trash and Litter reduction, Stormwater Facility Maintenance and Inspections, Illicit Discharge Detection and Elimination, and Public Education. This section addresses § III.E Management Programs.

§ III.E.1.a. Stormwater Management Facility Maintenance and Inspection

The DEP Stormwater Management (SWM) Facility Maintenance and Inspection Program oversees the triennial inspections and maintenance of all SWM facilities under the County's jurisdiction. DEP also issues notices of violations (NOVs) as appropriate.

To increase program efficiency, DEP has begun prioritizing maintenance of privately owned facilities by urgency of maintenance need.

Stormwater Management Maintenance Program Overview by Fiscal Year



§ III.E.1.c. Maryland Department of the Environment's Triennial Stormwater Program Review

In 2013, Maryland Department of the Environment reviewed the County's stormwater management program and found it to be acceptable under State law and in compliance with Part III.E.I of the Permit.

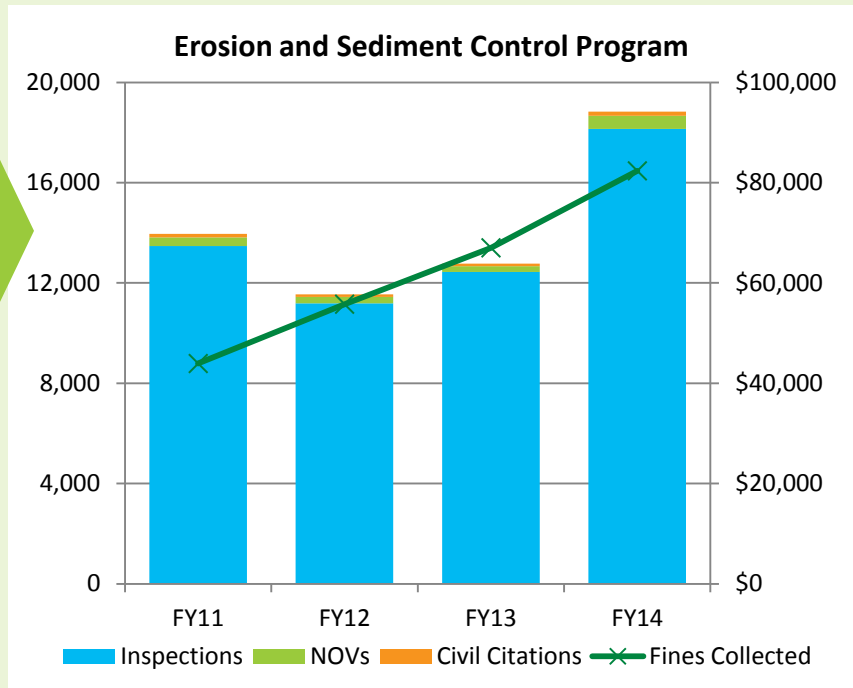
§ III.E.1.b. Implementing Maryland's Stormwater Management Act of 2007

In 2010 the County released a report detailing how the County's codes, regulations, programs, and policies may need to be updated to allow the use of ESD and low impact development. Based on this report and further study, many changes have been made, the most significant being the revision of the Zoning Code adopted in 2014 by County Council.

§ III.E.2. Erosion and Sediment Control

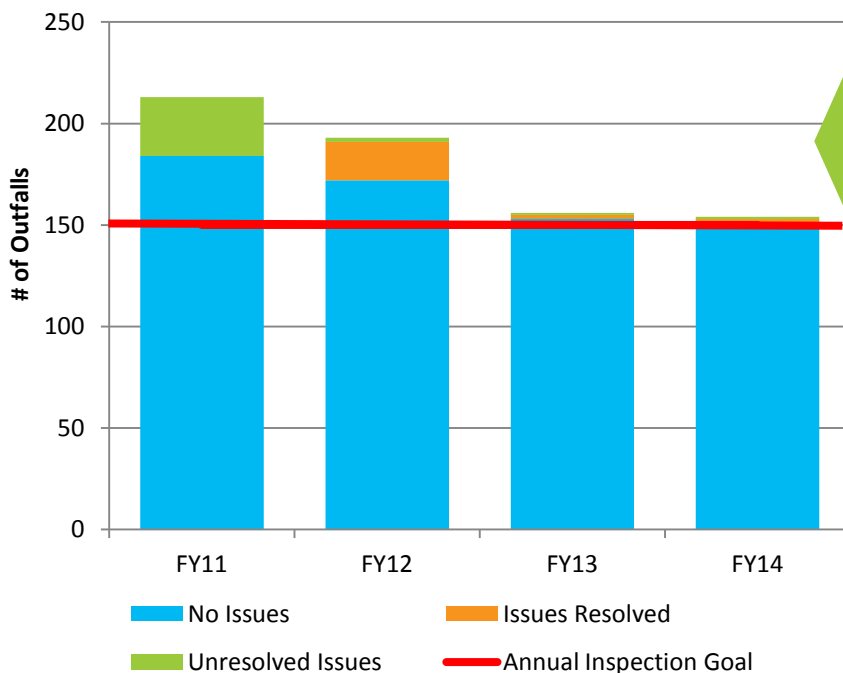
The County is responsible for the Erosion and Sediment Control (ESC) program which includes conducting inspections of ESC practices, issuing Notice of Violations (NOVs) and Civil Citations, and collecting fines.

ESC Program Compliance. In 2013 MDE evaluated the County's ESC program and found it to be in compliance with Part III.E.2 of the Permit.



§ III.E.3. Illicit Discharge Detection and Elimination

IDDE Program Results of Outfall Screening by Fiscal Year



For Illicit Discharge Detection and Elimination (IDDE) the County implements an inspection and enforcement program to ensure that non-stormwater discharges to the municipal separate storm sewer system are either permitted or eliminated.

DEP investigates all dry weather (non-stormwater) discharges that are determined by field testing to be polluted. Resolved issues reflect the discharges successfully tracked to their source and eliminated.

Throughout the Permit cycle, DEP has greatly improved IDDE inspections by focusing on smaller watersheds, conducting more thorough inspections, using Closed Circuit Television where appropriate, and testing for water quality parameters that are more informative.

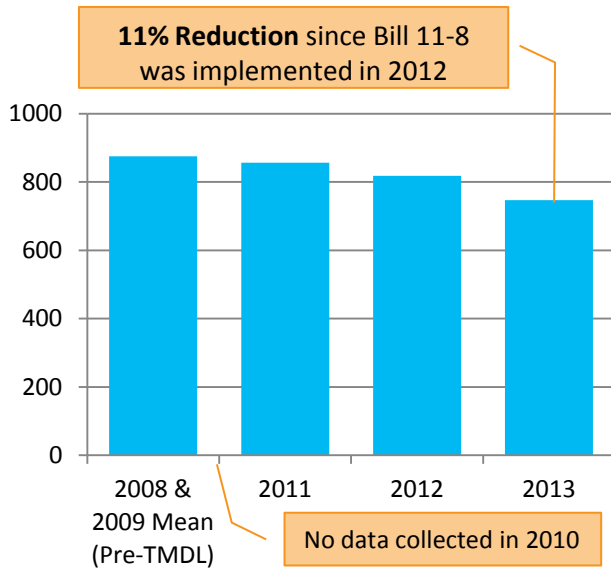
DEP and the Center for Watershed Protection initiated a partnership in FY11 to focus IDDE efforts in the Sligo Creek subwatershed. Through this partnership, DEP has tracked illicit discharges and focused on quantifying pollution from anti-microbial agents used in rooftop heating, ventilation, and air conditioning systems.

§ III.E.4. Trash and Litter

The County has many programs and partnerships designed to reduce trash to meet the Potomac Trash Free Treaty goals and the 2010 Anacostia Trash Total Maximum Daily Load (TMDL).

The County's Carryout Bag Law (Bill 11-8) requires a 5 cents tax per carryout bag in order to reduce disposable bag litter.

Trash Program: Number of Plastic Bags in Anacostia Streams



§ III.E.5. Property Management

All of the County agencies which operate maintenance facilities, including Department of Transportation, Department of General Services, Department of Environmental Protection, as well as Montgomery County Public Schools, are complying with their General Permits (GP) for Stormwater Discharges. These agencies have:

- Developed and submitted new Notices of Intent (NOIs) to comply with the GP
- Updated Stormwater Pollution Prevention Plans (SWPPPs)
- Conducted Annual SWPPP inspections
- Conducted training for onsite staff
- Increased funding for capital projects to improve stormwater pollution prevention

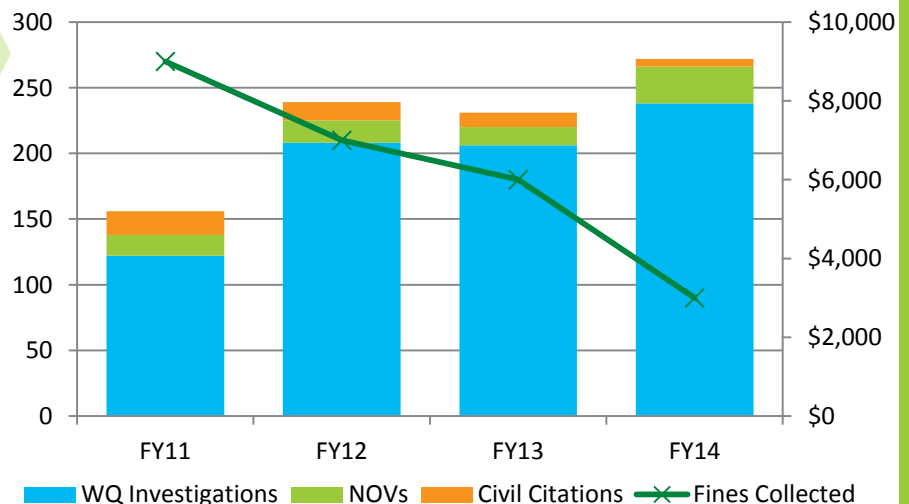
In addition to the measures above the Department of General Services has constructed two new maintenance depots with many pollution prevention and stormwater management upgrades. One of the depots, the Equipment Maintenance and Transit Operations Center, won a National Association of Counties award in FY14 for innovative green building designs elements including a green roof, stream buffer protection, and forest conservation.

Enforcement Actions

The DEP's Division of Environmental Policy and Compliance investigates and issues enforcement actions for water quality problems including complaints and sanitary sewer overflows.

Over the Permit cycle, the number of water quality cases have risen due partly to increased public outreach on stormwater pollution and more accessible communication protocols. The County now provides a 311 call service center and website where citizens can report incidents involving environmental problems.

Water Quality Enforcement Actions



§ III.E.6. Road Maintenance

Street Sweeping and Storm Drain Cleaning. Each year, tons of pollutants are prevented from entering the County's streams by the County's street sweeping program and Department of Transportation's cleaning of storm drain pipes and inlets. In FY14, these programs included:

- 229 miles of arterial street sweeping, which:
 - Removed 406 tons of material
 - Represents 162.6 impervious acres controlled
 - Removed 1,421 pounds of Total Nitrogen
 - Removed 568 pounds of Total Phosphorus
 - Removed 85 tons of Total Suspended Solids
- Cleaning 648 storm drain inlets and over 20,000 linear feet of storm drain, which:
 - Removed 406 tons of material
 - Represents 86 impervious acres controlled

Application of Sand and Salt. The DOT is minimizing the use of winter materials to the maximum extent practical, including pretreating roadways with salt brine, a practice that achieves deicing while using less salt.

§ III.E.7. Public Outreach and Education

The County continues to expand education and outreach programs to meet Permit requirements as outlined in the Public Outreach and Stewardship workplan (part of the Countywide Coordinated Implementation Strategy). DEP intends to eventually quantify pollutant reductions associated with behavior changes from these programs.

12,000+
Attendees

During this Permit cycle, DEP reached more than 12,000 people through outreach events. This translates to a 745% increase in DEP's watershed outreach presence in the community since the program's rejuvenation. Major activities included:

- **Anti-Litter Campaign:** The White Oak Community Anti-Litter Pilot in the Anacostia Watershed includes outreach and monitoring to show that changing people's behavior can reduce litter in local streams.
- **Watershed Group Capacity Building:** Local watershed groups receive training and guidance to educate residents about water quality awareness and to provide hands-on assistance.
- **Pet Waste Station Pilot:** 7 pet waste stations were installed in the Rock Creek watershed. Over 1,800 pounds of pet waste were collected in a year, preventing 105 pounds of nitrogen and 14 pounds of phosphorus from entering the County's streams.



Watershed Health

The County has completed its first round of watershed assessments and restoration project inventories. The County is implementing and assessing projects to reduce pollutants to meet Total Maximum Daily Loads. The County has prepared a Countywide Coordinated Implementation Strategy to achieve all Wasteload Allocations by 2035 except those for bacteria. This section addresses § § III.F Watershed Assessment, III.G. Watershed Restoration, III.H. Assessment of Controls, and III.J. Total Maximum Daily Loads.

§ III.F. Watershed Assessment

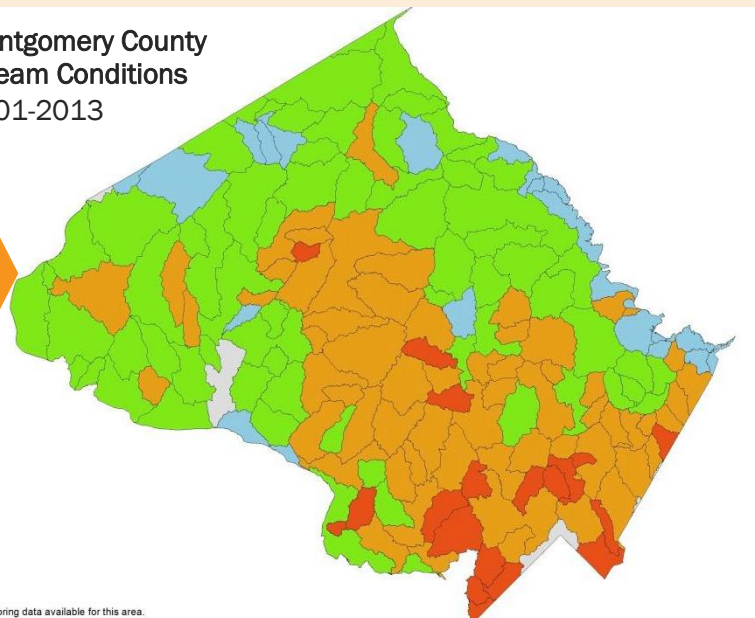


DEP has assessed all major watersheds in Montgomery County to identify opportunities for stormwater management and stream restoration.

Based on these assessments, watershed implementation plans to meet Permit goals have been developed for all County watersheds.

Stream Monitoring. DEP monitors water chemistry, biological community, and stream habitat conditions at representative stations in all County watersheds on a rotating basis over a five year cycle. Using this data, DEP labels biological conditions in streams as *excellent*, *good*, *fair* or *poor*. With continuous implementation of a robust MS4 permit, the County expects to see improvements over time in stream conditions.

**Montgomery County
Stream Conditions
2001-2013**



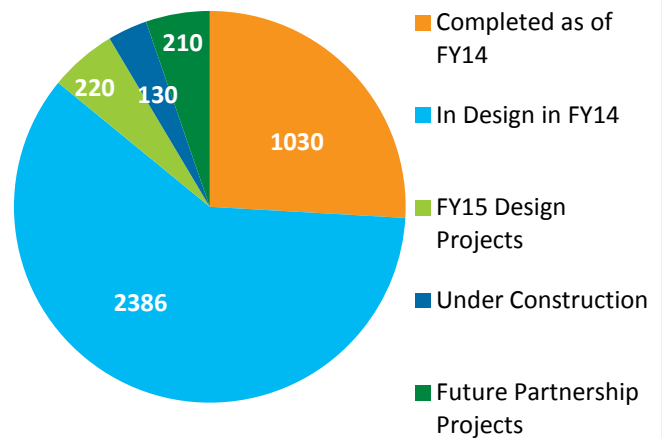
§ III.G. Watershed Restoration

Progress in Achieving the Municipal Separate Storm Sewer System (MS4) Permit Watershed Restoration Goal: DEP is currently reviewing current progress achieved towards meeting the goal of 20% impervious area control. DEP will provide an update when this review is complete.

To meet the current goals of the Permit to restore the County's watersheds to the maximum extent practicable, the County is implementing a variety of watershed restoration projects. These projects are in various stages of completion. Approximately 1,030 acres of impervious area are being controlled through projects that have already been completed. Projects to control another 2,386 acres were in the design phase in FY14. The County's watershed restoration projects including the following types:

- **Stream restoration:** Reconstructing the stream channel to reduce erosion and improve habitat
- **Neighborhood Green Streets:** Vegetated best management practices (BMPs) to reduce stormwater from streets and roads.
- **Stormwater Retrofits:** Ponds and parking lot BMPs that capture and treat stormwater runoff
- **Government Facilities:** Building BMPs at government facilities to capture runoff
- **Residential projects:** Rainscapes program
- **Reforestation and impervious removal:** return to a more natural environment so stormwater is captured
- **Management projects:** Street sweeping and catch basin cleaning
- **Redevelopment projects:** BMPs are required to be installed as impervious areas are redeveloped
- **Partnership projects:** Partner with other County and external agencies to add stormwater control

**Impervious Area Controlled (Acres)*
through Watershed Restoration
Projects**



** Preliminary data as of June 2014. Final data will be provided in final report.*

§ III.H. Assessment of Controls

Watershed Restoration Assessment. The Permit requires DEP monitor watershed restoration success using a study design approved by the Maryland Department of the Environment. DEP is monitoring the Breewood Tributary in the Anacostia Watershed before, during, and after restoration activities are implemented. These projects include stream restoration and adding upland stormwater management to improve water quality, stream health, and ecological function.

Stormwater Management Assessment. DEP has met and enhanced the requirements of the Permit to evaluate the effectiveness of stormwater management practices required through the Maryland Design Manual. Biological, physical, and hydrology monitoring is being conducted for a comprehensive evaluation of the impacts from development in the Clarksburg Town Center of the Clarksburg Special Protection Area. Post-construction monitoring will be completed in the next Permit cycle.

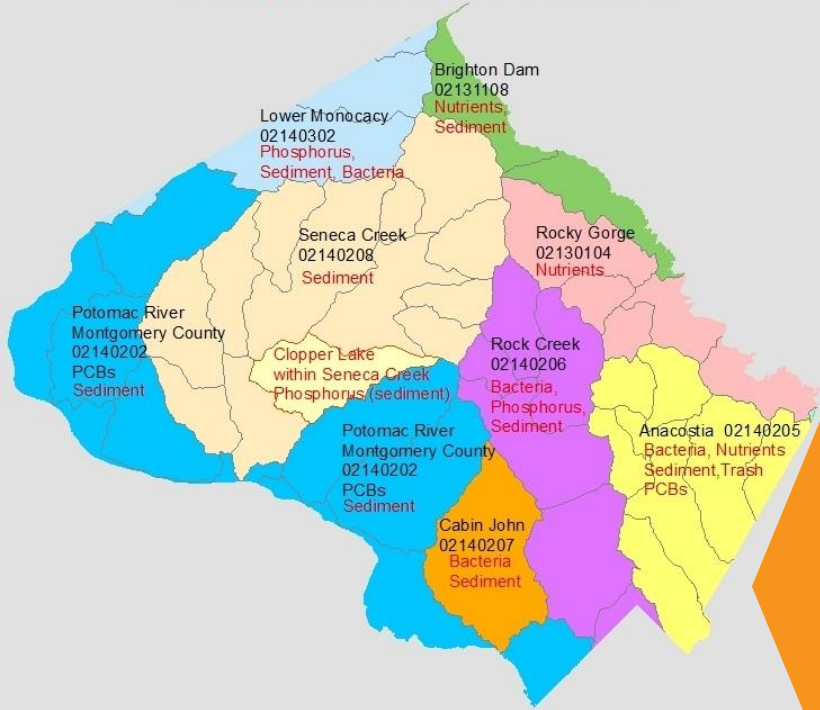
§ III.J. Total Maximum Daily Loads

What is a Total Maximum Daily Load (TMDL)?

A TMDL is regulatory term that describes the maximum amount of a pollutant a waterbody can receive while still meeting water quality standards.

County Watersheds on Maryland's Impaired List January 2014

EPA approved TMDLs shown in red



A TMDL is calculated as follows:

$TMDL = WLA + LA + MOS$ where

WLA = Waste Load Allocation: the amount of pollutant allowed from point sources such as a wastewater treatment plant discharge pipe

LA = Load Allocation: the amount of pollutant allowed from non-point sources such as agriculture

MOS = the Margin of Safety: Accounts for uncertainty in predicting how well pollutant reductions will result in meeting water quality standards

The Permit requires the County to develop a plan to achieve progress towards the County's WLAs associated with TMDLs that existed as of 2009 and that have since been issued. The 2012 Countywide Coordinated Implementation Strategy and recent Watershed Implementation Plans demonstrate the County will achieve these WLAs by 2035 except for bacteria. There are very few management practices that specifically reduce bacteria in stormwater runoff.

Chesapeake Bay TMDL. The County and its many partners continue working together to meet the nutrient and sediment reductions required for the Chesapeake Bay TMDL. Progress on local TMDLs supports progress towards the Bay TMDL.

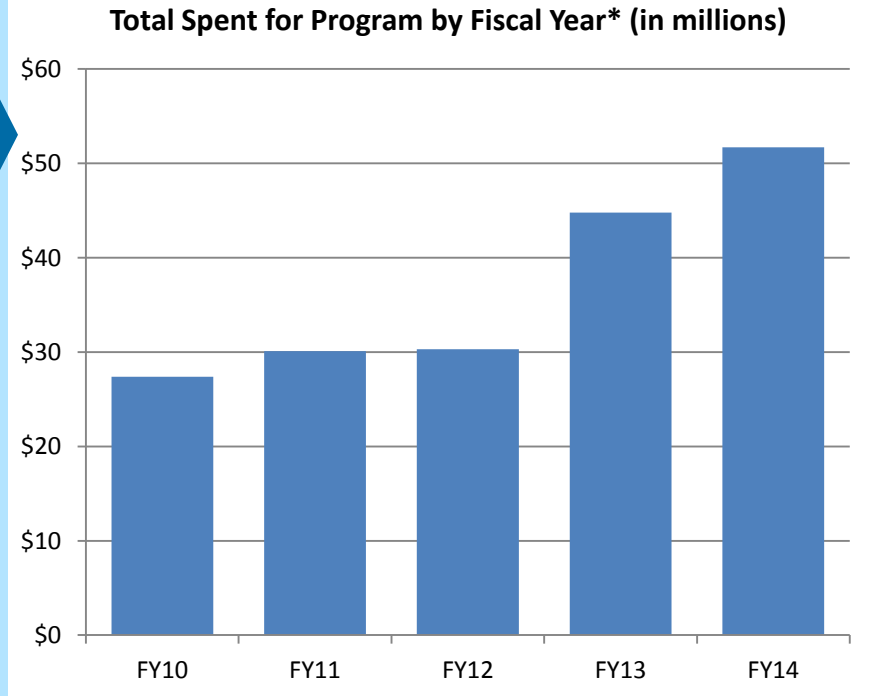


Program Funding

The County has committed to meet stormwater initiatives through a ten-fold increase in capital improvement project funding and an increase in operating budget funding over the Permit term. This section addresses § III.I. Program Funding.

§ III.H. Program Funding

Total funding spent for all programmatic measures including personnel and capital improvement costs have substantially increased over the past five fiscal years.



**Starting in FY13 expenditures comprise additional costs including personnel, administrative and debt service that are not reflected in previous years.*

Funding Sources

The County currently has an approved capital budget of \$363.7 million for the FY15-FY20 period. The increase in watershed restoration and stormwater facility maintenance and inspection will be financed primarily through water quality protection bonds. The debt service for these bonds will be supported by the County's Water Quality Protection Fund (WQPF). The CIP budget assumes \$60 million in State aid over the six year CIP cycle based on grants awarded.

Lessons Learned

- The time required to build an effective restoration program exceeds by far the five year Municipal Separate Storm Sewer System Permit cycle.
- Many Permit programs require an adaptive management approach where progress is evaluated and programs are adjusted to maximize efficiency and cost effectiveness.
- There is much more to be understood regarding the effectiveness of practices to improve water quality and how to make watershed restoration programs more cost- effective.
- There are opportunities to improve efficiencies in Permit related programs (e.g., in particular for implementation and tracking success in watershed restoration).
- The County would like the flexibility to design a program that will better evaluate the effectiveness of the State's stormwater design manual requirements. Documenting the success of the Environmental Site Design approach in reducing water quantity and quality impacts requires more than the current focus on stream channel morphology.
- Watershed Assessments, Implementation Plans and Workplans have been completed. Effectively implementing the actions in these plans is the County's primary focus.

